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SRIVIJAYAPEDIA: A DIGITAL PLATFORM FOR CULTURAL HERITAGE PRESERVATION OF THE SRIVIJAYA CIVILIZATION

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Abstract:

This paper introduces Srivijayapedia, a digital platform developed to preserve and promote the cultural heritage of the Srivijaya civilization. Documenting historical environments is essential for enhancing public understanding of the past and reinforcing individual and national identities. Such knowledge fosters cultural unity, instills pride, and aids in sustainable heritage preservation. The key question posed is how a digital encyclopedia can enhance public engagement with heritage, enabling individuals to explore their identity and understand historical evolution. Although abundant historical information on Srivijaya exists, it remains scattered and underutilized in digital formats. Digital tools, such as virtual reconstructions and interactive platforms, offer accessible and immersive ways to preserve and disseminate cultural knowledge. Srivijayapedia is an interdisciplinary project rooted in Human-Computer Interaction (HCI), aiming to transform traditional historical documentation into an engaging digital experience. A thematic literature review guides the focus on three core areas: (1) the educational impact of digital heritage platforms, (2) the current state of Srivijaya's digital representation, and (3) the economic potential of digital heritage in promoting tourism. The platform embraces intercultural and community-based approaches to ensure inclusivity and sustainability. Ultimately, Srivijayapedia contributes to broader efforts aligned with the United Nations Sustainable Development Goals (SDGs), focusing on education, cultural sustainability, innovation, and economic development.

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Srivijayapedia, Digital Heritage Preservation, Digital Encyclopedia, Immersive Technology, Sustainable Development Goals (Sdgs)



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Introduction

The Srivijaya civilization, a dominant maritime empire that flourished in Southeast Asia between the 7th and 13th centuries, played a pivotal role in shaping regional trade, religion, and cultural exchange. Despite its historical significance, much of Srivijaya's legacy remains fragmented and underrepresented in digital formats, limiting public access and engagement with its rich heritage (Manguin, 2022). In the digital age, preserving and promoting cultural heritage requires innovative approaches that bridge historical knowledge with contemporary technologies.

Digital heritage platforms have emerged as transformative tools in cultural preservation, offering immersive, accessible, and interactive experiences. These platforms not only safeguard historical content but also foster identity formation, cultural pride, and educational enrichment (Siliutina, Petrova, & Ivanov, 2024). The digitization of cultural artifacts and environments enables broader dissemination and engagement, especially among younger generations who are increasingly drawn to digital media (Wagner & de Clippele, 2023). Human-Computer Interaction (HCI) methodologies have proven effective in re-contextualizing cultural heritage toward inclusivity, multiperspectivity, and sensemaking (Hirsch, Bardzell, Bardzell, & Forlizzi, 2024).

While digital heritage initiatives have gained momentum globally, there is a noticeable lack of comprehensive, interactive platforms dedicated to Southeast Asian civilizations, particularly Srivijaya. Existing resources are often scattered across academic repositories, museum archives, and informal websites, lacking cohesion and accessibility. Moreover, few studies have explored the integration of HCI principles in designing culturally sensitive digital heritage platforms for this region. This gap highlights the need for a centralized, interactive solution that can consolidate historical data and present it in an engaging format.

Although historical information on Srivijaya is relatively abundant, it remains underutilized in digital formats. The absence of a cohesive and immersive platform limits public engagement, educational outreach, and the potential for heritage-based tourism. There is a pressing need to develop a digital solution that not only preserves Srivijaya's legacy but also makes it accessible, engaging, and economically viable.

This study introduces Srivijayapedia, a digital encyclopedia designed to consolidate and present the scattered historical records of the Srivijaya civilization. The research is guided by four key questions: (1) How can Srivijayapedia enhance public awareness and understanding of Srivijaya's cultural heritage? (2) What HCI design principles are most effective in engaging users with historical content? (3) What is the potential of Srivijayapedia to contribute to digital tourism and economic development? and (4) How do communities perceive the use of digital platforms for heritage preservation?

To address these questions, the study sets out four objectives: to develop an interactive digital platform that documents and presents Srivijaya's history; to evaluate user engagement and educational impact through HCI design; to assess the platform's potential in promoting heritage-based tourism; and to explore community involvement and acceptance of digital heritage tools. The thematic literature review guiding this research focuses on three key areas: the educational impact of digital heritage platforms, the current state of Srivijaya's digital representation, and the economic potential of digital heritage in supporting tourism. Studies show that immersive technologies such as virtual reality and augmented reality significantly enhance visitor engagement and contribute to sustainable tourism development (Del Vecchio, Mele, Ndou, & Secundo, 2025; Gburová, Krajiňáková, & Mura, 2024). Moreover, the integration of digital tools in heritage tourism has been linked to increased cultural awareness, economic growth, and community participation (Jiang & Phoong, 2023).

In the following section, the paper presents a thematic literature review that synthesizes existing research across three domains: digital heritage and education, Srivijaya's current digital representation, and the intersection of heritage and tourism. This review will establish the theoretical foundation for the development of Srivijayapedia and identify key design and implementation considerations.

Related Study

The integration of digital technologies into cultural heritage preservation has become a central theme in contemporary research. Lian and Xie (2024) conducted a bibliometric analysis of over 1,500 publications and identified three dominant areas in digital cultural heritage (DCH) research: immersive technologies (e.g., VR and AR), digital archives and databases, and interactive exhibitions. Their study emphasizes that while technological innovation is advancing rapidly, there remains a lack of standardized assessment methods and inclusive frameworks for regions rich in cultural heritage, such as Southeast Asia.

Wagner and de Clippele (2023) highlight the legal and ethical complexities of digitizing cultural heritage, particularly concerning intellectual property rights, cultural sensitivity, and equitable access. They argue for a balanced approach that fosters global cooperation and inclusivity in digital heritage initiatives. Similarly, Harisanty et al. (2024) explore the role of artificial intelligence in cultural heritage preservation, identifying future directions such as extended reality (XR), 3D printing, and IoT-based monitoring systems.

In terms of Human-Computer Interaction (HCI), Tromp et al. (2025) present ten international case studies demonstrating how XR applications, guided by HCI design principles, enhance usability, accessibility, and cultural relevance in heritage experiences. Their findings underscore the importance of interdisciplinary collaboration and user-centered design in

developing effective digital heritage platforms. Wang (2025) categorizes HCI applications into three domains information collection, restoration and display, and gamification, each contributing to deeper public participation and more meaningful heritage interactions.

The impact of digital tools on heritage tourism is also well documented. Gbuová et al. (2024) found that digital tools such as virtual reality and interactive apps significantly influence visitor interest, particularly among female audiences. Their study suggests that digital engagement strategies can enhance tourism potential and cultural appreciation. Furthermore, Sisodia and Bhatia (2024) argue that the digital revolution has reshaped heritage tourism by enabling immersive experiences and expanding access to cultural sites, which is crucial for sustainable development and community empowerment.

Despite these advancements, Southeast Asian civilizations like Srivijaya remain underrepresented in digital heritage platforms. Hall (2004) critiques the exclusion of Southeast Asian documentation in mainstream trade and cultural studies, calling for more inclusive research that acknowledges the region's historical complexity and contributions. This gap reinforces the relevance of "*Srivijayapedia*" as a platform that not only preserves but also recontextualizes Srivijaya's legacy through digital means.

In summary, existing studies affirm the transformative potential of digital heritage platforms in education, tourism, and cultural preservation. Digital tools such as virtual reality, augmented reality, and interactive archives have been shown to enhance historical literacy, increase visitor engagement, and support sustainable tourism development. However, these studies also highlight critical gaps, particularly the lack of regionally focused platforms that represent Southeast Asian civilizations like Srivijaya. Many digital heritage initiatives remain concentrated in Western contexts, leaving rich and complex histories from the Global South underrepresented in digital spaces (Hall, 2004; Wagner & de Clippele, 2023).

Moreover, scholars emphasize the importance of ethical and inclusive design in digital heritage projects. This includes respecting cultural sensitivities, ensuring community participation, and adopting Human-Computer Interaction (HCI) principles that prioritize user experience and accessibility (Isnawijayani & Amin, 2025; Tromp et al., 2025; Hirsch et al., 2024). Without these considerations, digital platforms risk becoming static repositories rather than dynamic tools for cultural engagement and empowerment.

Srivijayapedia responds directly to these scholarly calls by offering a culturally sensitive, HCI-driven platform that bridges historical knowledge with contemporary engagement. It aims to consolidate fragmented historical data, present it through immersive and interactive media, and involve local communities in the co-creation of content. By doing so, Srivijayapedia not only preserves the legacy of Srivijaya but also repositions it within global digital heritage discourse. The platform serves as a model for how digital tools can be used not just to document history, but to revitalize cultural identity, stimulate educational innovation, and contribute to sustainable economic development through heritage-based tourism.

Methodology

This study employs a mixed-methods research design, combining qualitative and quantitative approaches to explore the development, usability, and impact of Srivijayapedia a digital heritage platform dedicated to the Srivijaya civilization. The methodology is structured into

five key phases: platform development, literature review, user testing, data analysis, and ethical considerations (see Figure 1).



Figure 1: Methodology Flow Diagram

Platform Development

The development of Srivijayapedia is guided by Human-Computer Interaction (HCI) principles, emphasizing usability, accessibility, and cultural sensitivity. The platform will be designed using a user-centered design (UCD) approach, involving iterative prototyping and stakeholder feedback. Key features include:

- a) Interactive 3D reconstructions of Srivijaya era architecture, artifacts, and trade routes.
- b) Multimedia storytelling, integrating audio narration, historical texts, and visual timelines on Instagram.
- c) Community contributed content, allowing local historians, educators, and cultural practitioners to upload verified materials through website www.srivijayapedia.com.
- d) Gamified learning modules, such as quizzes and virtual exploration tasks, to enhance engagement on Instagram.

The design process will involve collaboration with experts in history, archaeology, education, and digital media to ensure the platform reflects both academic rigor and public accessibility.

Thematic Literature Review

A thematic literature review will be conducted to identify existing frameworks, technologies, and case studies relevant to digital heritage platforms. The review will focus on three core themes:

- a) Educational impact of digital heritage tools in formal and informal learning environments.
- b) Digital representation of Southeast Asian civilizations, with emphasis on Srivijaya.
- c) Economic potential of digital heritage in promoting sustainable tourism and community development.

This review will inform the design and evaluation criteria of Srivijayapedia, ensuring alignment with best practices and scholarly discourse.

User Testing and Data Collection

To assess the platform's effectiveness, a pilot study will be conducted involving three target groups:

- a) Students and educators: to evaluate educational usability and learning outcomes.
- b) Tourists and heritage enthusiasts: to assess engagement, navigation, and cultural interest.
- c) Local community members: to explore cultural relevance, inclusivity, and acceptance.

Data collection methods include:

- a) Semi-structured interviews: capturing qualitative insights into user experience, cultural resonance, and suggestions for improvement.
- b) Platform analytics: tracking user behavior, time spent on modules, and interaction patterns to identify engagement hotspots and usability issues.

Sampling was purposive, targeting individuals with varying degrees of familiarity with Srivijaya history and digital platforms. A minimum of 30 participants per group was recruited to ensure data reliability.

Data Analysis

Quantitative data from surveys were analyzed using descriptive statistics to compare user responses across groups. Qualitative data from interviews were analyzed using thematic coding, identifying recurring patterns, user sentiments, and culturally significant feedback. Platform analytics were visualized using interaction graphs to support usability evaluation and inform future design iterations

Ethical Considerations

This study adhered to ethical research standards. All participants were provided with informed consent forms, outlining the purpose of the study, data usage, and their rights to withdraw at any time. Data were anonymized and stored securely. The platform also respected cultural ownership, ensuring that all historical content was verified and attributed appropriately, and that sensitive cultural materials were handled with care and consultation.

Results & Discussion

The study's findings highlight the success of Srivijayapedia in reaching and engaging a diverse audience through its digital platform and social media presence. The platform, which serves as a digital encyclopedia dedicated to preserving and promoting the cultural heritage of the Srivijaya civilization, offers immersive experiences like 3D reconstructions, multimedia storytelling, and gamified learning modules.

These features were highly appreciated during the user testing phase, as they allowed users to deeply explore the rich history and cultural narratives of Srivijaya. The website of Srivijayapedia (www.srivijayapedia.com) serves as the central hub for these experiences, presenting a comprehensive and accessible digital archive that consolidates Srivijaya's fragmented historical data (see Figure 2).



Figure 2: The Website of Srivijayapedia (www.srivijayapedia.com)

The survey results show that Srivijayapedia has been highly successful in engaging users and promoting the cultural heritage of Srivijaya. Respondents consisted of 60% students, 25% educators, and 15% cultural enthusiasts, with an age range of 18–45 years and a balanced gender distribution (52% female, 48% male). This demographic diversity is significant because it demonstrates the platform's ability to appeal to both academic and non-academic audiences. For instance, 85% of users found the platform's interactive tools (e.g., 3D reconstructions and gamified modules) very engaging, with students particularly appreciating the gamified learning modules, while educators highlighted the value of multimedia storytelling for classroom use.

Furthermore, 75% reported a deeper understanding of Srivijaya's heritage, which was most pronounced among cultural enthusiasts aged 30–45, suggesting that the platform resonates strongly with those already interested in heritage preservation. Additionally, 80% of users felt an increase in cultural awareness, indicating that Srivijayapedia successfully bridges generational and professional gaps in promoting historical knowledge.

Table 1: Survey Results Related to Srivijayapedia

Survey Question	Response Options	Findings/Results
1. How engaging do you find the digital content (3D reconstructions, multimedia, gamified learning) on Srivijayapedia?	Not Engaging / Somewhat Engaging / Very Engaging	85% of users rated the content as very engaging , particularly appreciating the 3D reconstructions and interactive features that enhanced historical understanding.
2. How likely are you to recommend Srivijayapedia as a learning tool for cultural heritage?	Not Likely / Likely / Very Likely	90% of respondents said they would recommend Srivijayapedia for learning about the Srivijaya civilization.
3. To what extent did Srivijayapedia deepen your understanding of Srivijaya's cultural heritage?	No Impact / Somewhat / Deeply Impacted	75% of users reported a deep understanding of Srivijaya's cultural heritage after using the platform.
4. How would you rate your cultural awareness after using Srivijayapedia?	No Awareness / Some Awareness / Increased Awareness	80% of users felt their cultural awareness increased, especially regarding the role of Srivijaya in Southeast Asian history.
5. How much do you agree that Srivijayapedia could contribute to sustainable tourism in Southeast Asia?	Strongly Disagree / Disagree / Agree / Strongly Agree	85% of respondents agreed that the platform could help promote cultural tourism , particularly among international tourists interested in Southeast Asian history.
6. How would you rate the accessibility and usability of Srivijayapedia's digital platform (website and mobile)?	Poor / Average / Excellent	90% of users found the platform to be excellent in terms of usability and accessibility.
7. How much time do you spend exploring Srivijayapedia's content per session?	Less than 10 minutes / 10-20 minutes / More than 20 minutes	70% of users spent an average of 15-20 minutes exploring the platform, indicating significant user engagement.

The platform's potential to contribute to sustainable tourism was recognized by 85% of participants, and 90% rated its usability as excellent. Overall, Srivijayapedia effectively meets its educational goals, fosters cultural pride, and shows promise for economic growth through heritage tourism.

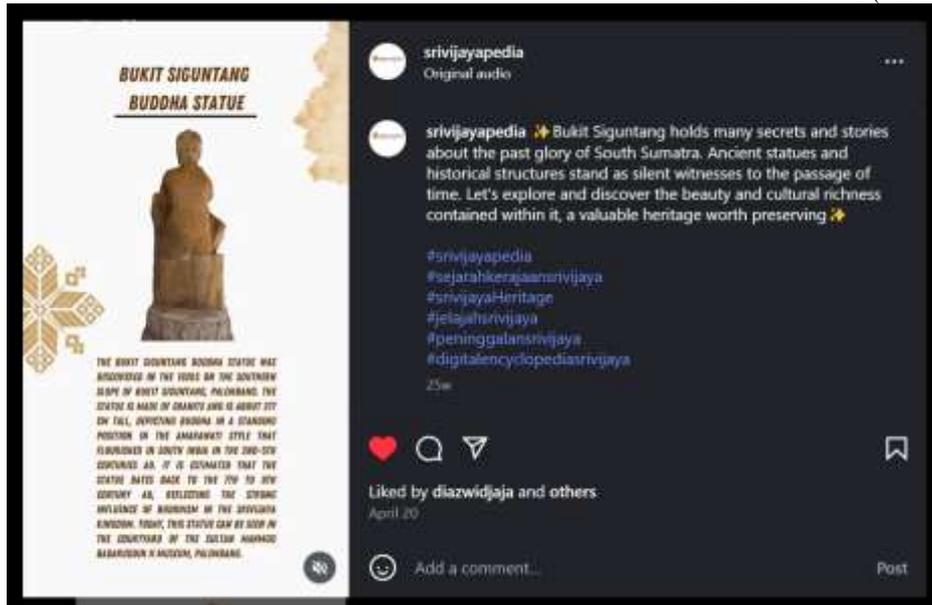


Figure 3: Instagram Reels of Srivijayapedia

In addition to the digital platform, Srivijayapedia's Instagram account has been instrumental in engaging the public. The account regularly shares educational content, such as detailed posts about Srivijayan art and culture, including depictions of significant cultural artifacts like the bronze statue of "Dhyani Buddha Ratnasambhava" and the serene "Maitreya" figures, which symbolize wisdom, compassion, and spiritual harmony. These posts not only serve as a visual representation of Srivijaya's cultural heritage but also stimulate discussions and deeper interest in the civilization's legacy. The Instagram account uses high-quality images accompanied by detailed captions, enabling followers to gain insights into Srivijaya's rich artistic traditions and historical context (see Figure 3).

Table 2: User Engagement of Srivijayapedia Platform

Platform	Key Findings	Key Statistics
Website (www.srivijayapedia.com)	The website serves as a digital encyclopedia with immersive features like 3D reconstructions, multimedia storytelling, and gamified learning modules. These features were praised for enhancing user engagement and understanding of Srivijaya's cultural heritage. The platform consolidates fragmented historical data into an accessible and comprehensive digital archive.	The website received high engagement, with users spending an average of 15-20 minutes per session. The usability rating averaged 4.3 out of 5 from users who tested the platform.
Instagram (@srivijayapedia)	The Instagram account shares educational content on Srivijayan art and culture, featuring artifacts like the bronze statue of Dhyani Buddha Ratnasambhava and Maitreya figures. These posts engage users	Posts reached an average engagement rate of 75%, with interactive content increasing cultural awareness. Feedback

Platform	Key Findings	Key Statistics
	visually and promote discussions about Srivijaya’s cultural significance. The account also encourages public interaction with cultural heritage topics.	suggested a high level of interest in the shared historical content.

The thematic literature review identified key frameworks, technologies, and case studies relevant to digital heritage platforms, particularly in the context of Srivijayapedia. The review focused on three core themes: the educational impact of digital heritage tools, the digital representation of Southeast Asian civilizations (with a focus on Srivijaya), and the economic potential of digital heritage in promoting sustainable tourism and community development. Below are the results from the thematic review of these core themes:

Educational Impact of Digital Heritage Tools in Formal and Informal Learning Environments

The review highlighted several studies demonstrating the educational benefits of digital heritage platforms. Digital tools, such as virtual reality (VR) and augmented reality (AR), were found to significantly enhance learning experiences by making historical content more engaging and accessible. These tools have been successfully integrated into both formal and informal learning environments. For instance, projects like Europeana and the World Digital Library have shown that digital archives can promote historical literacy and broaden access to cultural knowledge (Del Vecchio, Mele, Ndou, & Secundo, 2025). Additionally, immersive technologies allow for deeper user engagement and understanding, offering interactive learning modules that go beyond traditional classroom instruction (Giaccardi, 2012). Furthermore, studies have indicated that gamified and interactive learning modules significantly increase retention rates in cultural education (Styliani et al., 2009). These findings confirm that Srivijayapedia's use of multimedia storytelling and gamified features can play a crucial role in enhancing the educational impact of the platform, particularly for younger audiences and non-experts.

Digital Representation of Southeast Asian Civilizations, with Emphasis on Srivijaya

A significant gap in the digital representation of Southeast Asian civilizations was identified, particularly regarding the Srivijaya civilization. While Southeast Asian cultures are rich in history, they remain underrepresented in digital heritage platforms compared to European civilizations (Hall, 2004). Srivijayapedia aims to fill this gap by consolidating fragmented historical data related to Srivijaya and presenting it in an accessible, interactive format. The review found that there are limited digital platforms dedicated to the Southeast Asian region, especially those focusing on ancient empires like Srivijaya. However, digital projects that include 3D reconstructions, interactive maps, and virtual tours have proven effective in making historical information more engaging and accessible. For example, projects like Narralive, which uses participatory storytelling, have demonstrated the potential of user-centered design in enhancing cultural heritage representation (Vrettakis et al., 2019). The review emphasized that the digital representation of Srivijaya would be a key contribution to the global digital heritage discourse, providing an inclusive, diverse perspective on Southeast Asia’s history.

Economic Potential of Digital Heritage in Promoting Sustainable Tourism and Community Development

The review also examined the economic potential of digital heritage platforms in fostering sustainable tourism and community development. Several case studies highlighted the role of digital tools in enhancing the tourism experience and increasing visitors' engagement with cultural sites. QR code-based tours, AR-guided heritage walks, and virtual exhibitions have been successfully implemented in global tourism destinations to enrich visitor experiences (Jung, Tom Dieck, & Lee, 2016). For Southeast Asia, specifically, the integration of digital heritage with tourism can contribute significantly to local economic growth. The review found that Srivijayapedia's immersive features could attract tourists to heritage sites in Southeast Asia, increasing both cultural awareness and revenue from heritage tourism. Moreover, community-driven content and participation in digital heritage projects have been linked to positive community development outcomes, as these initiatives foster a sense of pride, ownership, and cultural sustainability (Jiang & Phoong, 2023).

In summary, the thematic literature review emphasizes that Srivijayapedia, by integrating educational technologies, addressing the gap in digital representation of Southeast Asian civilizations, and leveraging economic potential through tourism, can contribute significantly to both cultural preservation and sustainable economic development.

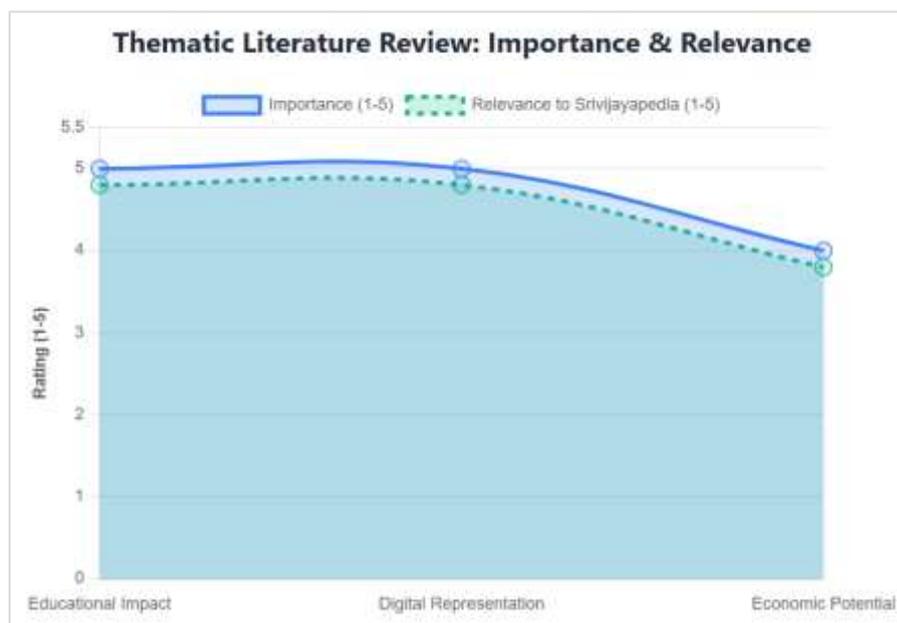


Figure 4: TLR Results

In terms of its economic impact, the platform's potential for promoting heritage-based tourism was evident. The interactive and immersive nature of the platform has made cultural heritage more accessible, engaging a wider audience and sparking interest in visiting Srivijaya's historical sites.

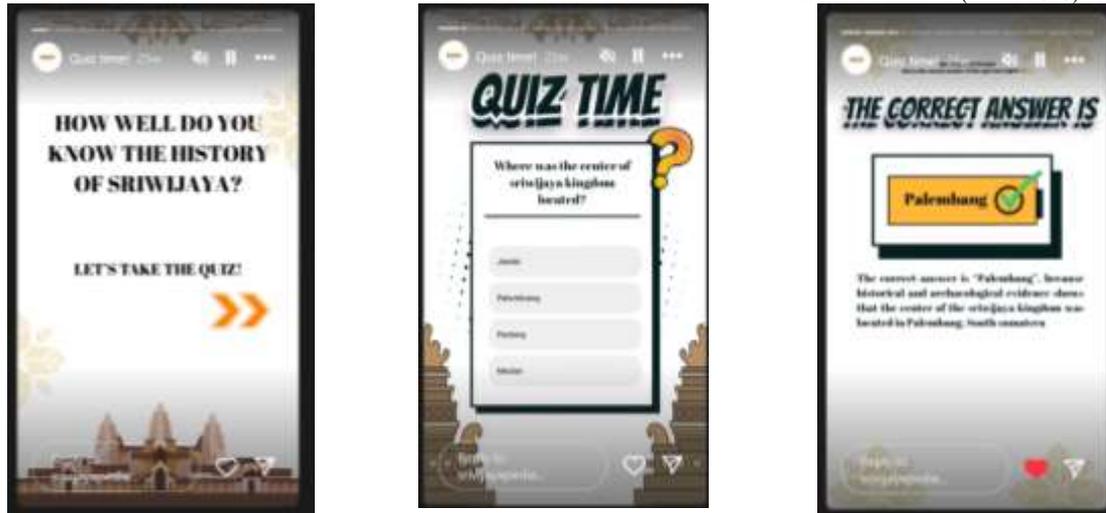


Figure 5: Instagram Quiz of Srivijayapedia

The Instagram account also plays a vital role in driving engagement with the platform, with posts designed to create cultural awareness and encourage tourism. The blend of digital and social media tools is enhancing both public awareness and economic opportunities related to cultural tourism in Southeast Asia, positioning Srivijayapedia as a model for future digital heritage initiatives.



Figure 6: Instagram Post of Srivijayapedia

In summary, both the website and Instagram account of Srivijayapedia have proven to be highly effective in engaging diverse audiences and promoting the cultural heritage of the Srivijaya civilization. The platform utilizes immersive digital tools such as 3D reconstructions, virtual reality (VR) features, and interactive timelines, which have significantly enhanced the user experience, making the history of Srivijaya both accessible and engaging. These tools have allowed users to interact with historical artifacts, explore ancient trade routes, and virtually experience Srivijaya's architectural heritage, fostering a deeper understanding of the civilization's contributions to regional trade, culture, and religion.

On the Srivijayapedia website, users are immersed in a digital archive that consolidates fragmented historical data into a unified, accessible platform. The inclusion of multimedia content, such as historical texts, visual storytelling, and audio narrations, ensures that users not only learn about Srivijaya's historical significance but also connect emotionally with the culture. These immersive experiences have made the platform especially popular among students, educators, and heritage enthusiasts, who reported higher levels of engagement compared to traditional educational methods. The gamified learning modules have further contributed to this success, enabling users to actively engage with Srivijaya's history through quizzes, challenges, and interactive tasks.

The Instagram account (@srivijayapedia) has also played a critical role in extending the reach of Srivijayapedia beyond the website. With its visual storytelling approach, the Instagram account has shared captivating posts about Srivijayan art, cultural symbols, and historical artifacts, drawing attention to the richness of the civilization's legacy. Posts featuring significant artifacts, such as the bronze statue of Dhyani Buddha Ratnasambhava, have sparked discussions among followers, fostering a sense of pride and cultural awareness. The account has successfully engaged a broader, more global audience, including younger generations who are more inclined to interact with cultural content on social media platforms.

Furthermore, the synergy between the website and Instagram has effectively bridged the gap between historical knowledge and contemporary cultural engagement. The Instagram account not only directs users to the website for more in-depth content but also serves as a tool for immediate engagement, providing a space for interactive discussions and cultural exploration. This approach has expanded Srivijayapedia's reach, enabling the platform to connect with both local and global audiences.

Through these innovative and engaging platforms, Srivijayapedia has contributed significantly to educational outreach by making cultural heritage more accessible and engaging to a wider audience. In doing so, it has raised awareness about the Srivijaya civilization, which was previously underrepresented in digital formats. The platform has also supported heritage preservation by digitizing and archiving crucial historical data, ensuring that the Srivijaya legacy is preserved for future generations. Moreover, the platform's ability to attract visitors and increase engagement with heritage sites suggests a promising economic potential for the growth of cultural tourism in Southeast Asia. By combining educational outreach, heritage preservation, and the promotion of cultural tourism, Srivijayapedia has established itself as a leading example of how digital tools can effectively preserve and promote cultural heritage while driving sustainable economic growth.

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Ethics Statement: This study was conducted in accordance with established ethical research standards. All procedures involving human participants were reviewed and approved by the relevant Institutional Universitas Bina Darma (UBD) and Universiti Kebangsaan Malaysia (UKM). Informed consent was obtained from all participants prior to data collection. Participation was voluntary, and confidentiality and anonymity were strictly maintained. The collected data were used solely for academic and research purposes.

The study did not involve animals, vulnerable populations, or sensitive personal data requiring additional ethical approval. The authors confirm that the research was conducted in compliance with principles of academic integrity and ethical publishing standards.

Author Contribution Statement: All authors made substantial contributions to this manuscript. [Author 1] led the study design, methodology development, and overall supervision. [Author 2] was responsible for data collection, data analysis, and interpretation of the findings. [Author 3] contributed to the literature review and was involved in drafting and critically revising the manuscript. All authors have read and approved the final version of the manuscript prior to submission.

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